PRIFYSGOL BANGOR / BANGOR UNIVERSITY

PRIFYSGOL
BANGOR
UNIVERSITY

Lounge Layout to Facilitate Communication and Engagement in People with Dementia

Sharp, Rebecca A.; Williams, Emma; Rörnes, Rebecka ; Lau, Choo Ying; Lamers, Carolien

Behavior Analysis in Practice

DOI:
10.1007/s40617-018-00323-4

Published: 30/09/2019

Peer reviewed version

Cyswllt i'r cyhoeddiad / Link to publication

Dyfyniad o'r fersiwn a gyhoeddwyd / Citation for published version (APA):
Sharp, R. A., Williams, E., Rörnes, R., Lau, C. Y., & Lamers, C. (2019). Lounge Layout to Facilitate Communication and Engagement in People with Dementia. *Behavior Analysis in Practice*, *12*(3), 637-642. https://doi.org/10.1007/s40617-018-00323-4

Hawliau Cyffredinol / General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
• You may not further distribute the material or use it for any profit-making activity or commercial gain
• You may freely distribute the URL identifying the publication in the public portal ?

Take down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

05. May. 2023

Lounge Layout to Facilitate Communication and Engagement in People With Dementia

Rebecca A. Sharp, Emma Williams, Rebecka Rörnes, Choo Ying Lau, and Carolien Lamers

Bangor University, Wales, United Kingdom

Author Note

Rebecca A. Sharp, School of Psychology, Bangor University, Wales, United Kingdom; Emma Williams, School of Psychology, Bangor University, Wales, United Kingdom; Rebecka Rörnes, School of Psychology, Bangor University, Wales, United Kingdom; Choo Ying Lau, School of Psychology, Bangor University, Wales, United Kingdom; Carolien Lamers, North Wales Clinical Psychology Programme, Bangor University, Wales United Kingdom.

We thank Dr. David Oakley and Ms. Carolyn Humphreys for their assistance, and the ward and clients who participated.

Correspondence concerning this article should be addressed to Rebecca Sharp, School of Psychology, Bangor University, Bangor, Gwynedd, LL57 2DG, United Kingdom. Phone: +44 1248 38 2484. Fax: +44 1248 38 2629. E-mail: r.a.sharp@bangor.ac.uk

Abstract

The design of care settings for people with dementia is often guided by expert opinion rather than empirical data. We evaluated the effect of arranging lounge furniture in different configurations on communication, engagement with activities, and indices of happiness in people with dementia. We found that the common configuration of chairs placed around the outside of the room resulted in the least of all three behaviors. Communication occurred most when the furniture was arranged in groups, and engagement occurred most when the furniture layout maximized the salience of available activities.

Keywords: stimulus control, furniture, dementia, engagement, indices of happiness

- It is useful to evaluate the design of dementia-care settings from a behavior-analytic perspective and to measure the effect of design on overt behaviors that might be a proxy for quality of life.
- Simple antecedent manipulations that do not require extensive staff training or involvement can improve the quality of life of people with dementia in care settings.
- Arranging the furniture in small groups promotes communication between people with dementia.
- Arranging the furniture around available activities promotes engagement with the activities.

Lounge Layout to Facilitate Communication and Engagement in People With Dementia

People with dementia in care settings often spend large periods of time disengaged from social interactions or activities. For example, Casey, Low, Goodenough, Fletcher, and Brodaty (2014) found that care-home residents spent 19% of the time doing nothing and were involved in social interactions less than 50% of the time. As a result, people's verbal communities may narrow, their verbal repertoires may diminish, and they may show less positive affect. There are a number of interventions that have been shown to increase engagement in activities in care settings, including the introduction of structured activities (Gallagher & Keenan, 2000). However, many interventions require dedicated staff time, training, or materials. Therefore, there is a need to evaluate simple environmental changes that are socially valid, are easy to implement, do not require dedicated staff time to implement, but increase engagement and enjoyment effectively.

Arranging the physical environment to create antecedents for interactions and engagement could reduce the need for more complex interventions. For example, placing lounge chairs facing each other might promote conversation between people with dementia whose mobility and visual limitations may restrict their ability to turn their heads to speak to the person next to them (e.g., when chairs are placed adjacently). Similarly, arranging furniture to maximize the salience of available activities or reduce the response effort in accessing those activities might represent a simple antecedent intervention to increase engagement. People with dementia in care settings can spend more than half of the day in communal areas such as lounges (Ice, 2002). Lounges are commonly arranged with chairs around the outside of the room, which might minimize tripping hazards. However, this common layout may not facilitate communication or engagement.

There is a body of literature on how best to arrange shared physical environments of people with dementia, but much is based on expert opinion rather than underpinned by objective measurement of specific behaviors. However, there is some evidence that particular furniture layouts promote communication. Peterson, Knapp, Rosen, and Pither (1977) evaluated the effect of placing chairs in different configurations and found that talking between people with dementia increased when chairs were arranged around tables, decreased slightly when the chairs were arranged around the outside of the room, and was least frequent when chairs were arranged in an ellipse. However, they found that of 14 behaviors (including cooperative behavior, standing, and manipulating objects), only talking varied across the layouts. We aimed to conduct a further evaluation of the effect of three furniture layouts (chairs around the edges of the room, chairs around tables, and furniture grouped around activities) on communication, engagement, and indices of happiness in a dementia-care setting.

Method

Participants and Setting

The setting was a 14-bed hospital ward specializing in temporary care and specialized assessment for people with dementia when they are unable to be cared for safely in the community. The duration over which people remained on the ward varied but was often at least several months (i.e., comparative to longer term care settings). Over the duration of the study, 18 individuals resided on the ward. Participants were 10 women and 8 men diagnosed with dementia (16 diagnosed with Alzheimer's disease, 1 diagnosed with vascular dementia, and 1 diagnosed with frontotemporal dementia). Participants were aged between 60 and 85 years, and all had a vocal-verbal repertoire. All participants were independently mobile, including one man who used a walker.

Although the setting was a hospital ward, it was arranged like a care home, with individual bedrooms, a dining room, garden, and lounge. The lounge measured approximately 7 m × 6 m, had an alcove containing a television, and had a bay window (with a 1.5-m center window and 1.2-m side windows). There were seven single-seater armchairs, four wooden dining chairs, four two-seater sofas, two round tables (one 1.2 m in diameter and one 1 m in diameter), and two rectangular coffee tables (50 cm × 90 cm). Activity materials available in the room (placed on the tables) were magazines, newspapers, jigsaw puzzles, and dominoes.

Procedure

We used a multielement design and a random number generator to select which of the three furniture layouts was used in each session. We arranged the furniture as per the layout and waited at least 15 min before commencing a session to allow the people with dementia to enter the lounge and find a place to sit.

Chairs around the edge. The layout was composed of the chairs and tables placed against the four walls of the lounge (Figure 1). This layout was what was used prior to the experimenters commencing work on the ward.

Activity specific. The activity-specific layout involved the chairs and tables arranged around the available activities and the activities separated by type (Figure 1). For example, a sofa and coffee table were placed in front of the television for television watching, the dining chairs were arranged around a table with puzzles on it, armchairs were placed around a table with dominoes on it, and a sofa and armchairs were placed around a coffee table with magazines on it.

Small groups. The small-groups layout involved grouping the chairs around tables and coffee tables so that people could sit facing one another (Figure 1).

In all three layouts, the same activity materials were available and placed on the tables and coffee tables. Only in the activity-specific layout were activities separated by type and placed on specific tables; in the other layouts, the activities were mixed and placed at random on tables. The television was switched on. Between zero and six members of staff were present in the room during each session.

Measurement and Interobserver Agreement

Communication was defined as vocal exchanges between people with dementia such as asking questions and making comments, statements, or jokes; having gaze directed at another person with dementia who was talking; physical contact with another person with dementia such as shaking hands; and pointing, nodding, or shaking one's head while being oriented toward another person. Communication between people with dementia and staff was not recorded. Engagement was defined as touching or manipulating any activity materials (e.g., placing a domino), waiting for a turn to place a domino or puzzle piece, or watching the television (visually oriented toward the television). We adapted the definitions of indices of happiness designed by Green and Reid (1996) to include any facial expression or vocalization that might indicate happiness and might also be observed in a person with dementia (e.g., laughing and smiling).

Direct observations were conducted in 20-min sessions using a modified 10-s momentary time-sampling (MTS) method (Powell, Martindale, & Kulp, 1975). To account for differing people (and number of people) in the room across sessions, rotational MTS was used, whereby a different person was observed at the end of each 10-s interval (e.g., when there were six people with dementia present, the first person was observed at the end of the first interval, the second person was observed at the end of the second interval, etc.; each person was observed once per

minute). If a person left the room during observations, the next person in the rotation was observed at the end of the next interval. If a person entered the room during a session, he or she was added to the rotation. At least two people were required to be present for observations to be conducted (maximum 14 people on the ward and therefore in the lounge at any time). Sessions were conducted over 9 days, with no more than two sessions conducted per day (at least 2 hr apart).

A second observer collected data in 86% of sessions, and agreement was calculated by dividing the number of intervals in which both observers agreed on occurrence and nonoccurrence by the total number of intervals and multiplying by 100. Mean interobserver agreement was 92% (range 83%–100%).

Results

Communication was highest in the small-groups layout (observed at the end of between 54% and 66% of intervals), and engagement was highest in the activity-specific layout (observed at the end of between 15% and 71% of intervals; Figure 2). Engagement and communication were both lowest in the layout with chairs around the edge (observed at the end of 10% or fewer intervals for both behaviors across all sessions). There was little differentiation in the percentage of intervals at the end of which indices of happiness were observed across the three layouts. However, indices of happiness were never observed in the layout with chairs around the edge but were observed at the end of between 0% and 11% of intervals in the other two layouts (Figure 3).

Discussion

We evaluated the effects of a simple antecedent manipulation (rearranging lounge furniture) on communication, engagement, and indices of happiness in people with dementia in a care setting. We found that arranging the furniture around specific activities most effectively

promoted engagement, whereas arranging the furniture in small groups most effectively promoted communication between people with dementia. In corroboration with Peterson et al. (1977), we found that layouts in which chairs were grouped promoted more social behaviors than when chairs were placed around the outside of the room. Similarly, we found generally low rates of indices of happiness, which corroborates previous research that has found a lack of overt affect in people with dementia in care settings (e.g., Casey et al., 2014). However, we did find increases in indices of happiness when chairs were grouped rather than adjacent to one another around the edges of the room.

Demands on staff to provide assistance with personal care such as getting dressed, washing, and eating can be high (e.g., approximately 20–30 min are required to assist people in each episode of washing; Simmons, Coelho, Sandler, Shah, & Schnelle, 2017) and may preclude staff from being available to engage with people with dementia in leisure activities. Therefore, effective environmental arrangements to promote engagement and communication that do not rely on staff are valuable. We did not record communication between staff and people with dementia, nor did we manipulate the number of staff, the specific staff members present, or their behavior, because we wanted to evaluate the effects of changing the furniture layout on the ward as it currently operates (i.e., with variability across who is on shift, how many staff members are present in the lounge, etc.). Because we did not measure communication between staff and people with dementia, our measures of communication could be underestimates. Additionally, although we did not observe anecdotally any changes in staff behavior, it is possible that different furniture layouts provided different discriminative stimuli for staff to prompt or reinforce interactions and engagement. A limitation is that we did not measure staff behavior

(i.e., how frequently staff prompted or reinforced behavior at baseline or during the different layouts), and future studies should include such a measure.

The finding that arranging the furniture around specific activities increased engagement most aligns with previous research on the effects of manipulating activity provision. For example, Quattrochi-Tubin and Jason (1980) provided coffee and cookies in the lounge area and observed an increase in interactions between residents. In addition to adding an activity in which people with dementia can engage, the provision of coffee and cookies may also provide discriminative stimuli for interactions (e.g., people pouring cups of coffee for each other, passing the plate of cookies, etc.). In our study, the activity-specific layout may have increased the salience of the activities that were available and allowed people to select where to sit based on their preferences for activities. Systematic and objective methods for identifying preferences for activities such as music, games, art, and so forth can allow services to tailor the available activities and prevent reliance on past preferences identified through self-report (which may no longer be preferences).

Despite the effectiveness of simple antecedent interventions, staff may need to actively promote engagement and communication. For example, McClannahan and Risley (1975) found that a structured method of presenting materials and prompting engagement was necessary to increase engagement; simply making activity materials available had little effect on participation. Another method is “room management” (Cash, Sturmey, & Bush, 1995), in which a room manager rotates around people, prompts engagement, and provides social reinforcement for engagement. Such interventions could be taught to staff once the environment is suitably arranged to maximize engagement and communication. Our data show the capacity for further interventions to increase behaviors such as communication, engagement, and indices of

happiness. However, we argue that care-setting design based on empirical data is a first port of call for promoting quality of life for people with dementia. More research is required to evaluate objectively optimal environmental arrangements to promote quality of life, reflect the preferences of people with dementia, and facilitate discrimination between rooms, activities, and contingencies. Simple antecedent interventions are often socially valid and easy to implement and, when shown to be successful, might help behavior analysts to gain buy-in from staff to conduct more complex interventions.

Compliance with Ethical Standards

Conflicts of interest: Rebecca A. Sharp declares no conflict of interest. Emma Williams declares no conflict of interest. Rebecka Rörnes declares no conflict of interest. Choo Ying Lau declares no conflict of interest. Carolien Lamers declares no conflict of interest.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Funding: This study did not receive any funding.

Informed consent: Informed consent was obtained from all individual participants included in the study.

References

Casey, A. N., Low, L. F., Goodenough, B., Fletcher, J., & Brodaty, H. (2014). Computer-assisted direct observation of behavioral agitation, engagement, and affect in long-term care residents. *Journal of the American Medical Directors Association, 15*(7), 514–520. doi:10.1016/j.jamda.2014.03.006

Cash, J., Sturmey, P., & Bush, D. (1995). The effects of room management and small-group procedures on the behavior of older adults who have Alzheimer's disease. *Behavioral Interventions, 10*(4), 181–195. doi:10.1002/bin.2360100402

Gallagher, S. M., & Keenan, M. (2000). Extending high rates of meaningful interaction among the elderly in residential care through participation in a specifically designed activity. *Behavioral Interventions, 15*(2), 113–119. doi:10.1002/(SICI)1099-078X(200004/06)15:2<113::AID-BIN46>3.0.CO;2-Y

Green, C. W., & Reid, D. H. (1996). Defining, validating, and increasing indices of happiness among people with profound multiple disabilities. *Journal of Applied Behavior Analysis, 29*(1), 67–78. doi:10.1901/jaba.1996.29-67

Ice, G. H. (2002). Daily life in a nursing home: Has it changed in 25 years? *Journal of Aging Studies, 16*(4), 345–359. doi:10.1016/S0890-4065(02)00069-5

McClannahan, L. E., & Risley, T. R. (1975). Design of living environments for nursing-home residents: Increasing participation in recreation activities. *Journal of Applied Behavior Analysis, 8*(3), 261–268. doi:10.1901/jaba.1975.8-261

Peterson, R. F., Knapp, T. J., Rosen, J. C., & Pither, B. F. (1977). The effects of furniture arrangement on the behavior of geriatric patients. *Behavior Therapy, 8*(3), 464–467. doi:10.1016/S0005-7894(77)80083-X

Powell, J., Martindale, A., & Kulp, S. (1975). An evaluation of time-sample measures of behavior. *Journal of Applied Behavior Analysis, 8*(4), 463–469. doi:10.1901/jaba.1975.8-463

Quattrochi-Tubin, S., & Jason, L. A. (1980). Enhancing social interactions and activity among the elderly through stimulus control. *Journal of Applied Behavior Analysis, 13*(1), 159–163. doi:10.1901/jaba.1980.13-159

Simmons, S. F., Coelho, C. S., Sandler, A., Shah, A. S., & Schnelle, J. F. (2017). Managing person-centered dementia care in an assisted living facility: Staffing and time considerations. *The Gerontologist, 58*(4), e251–e259. doi:10.1093/geront/gnx089

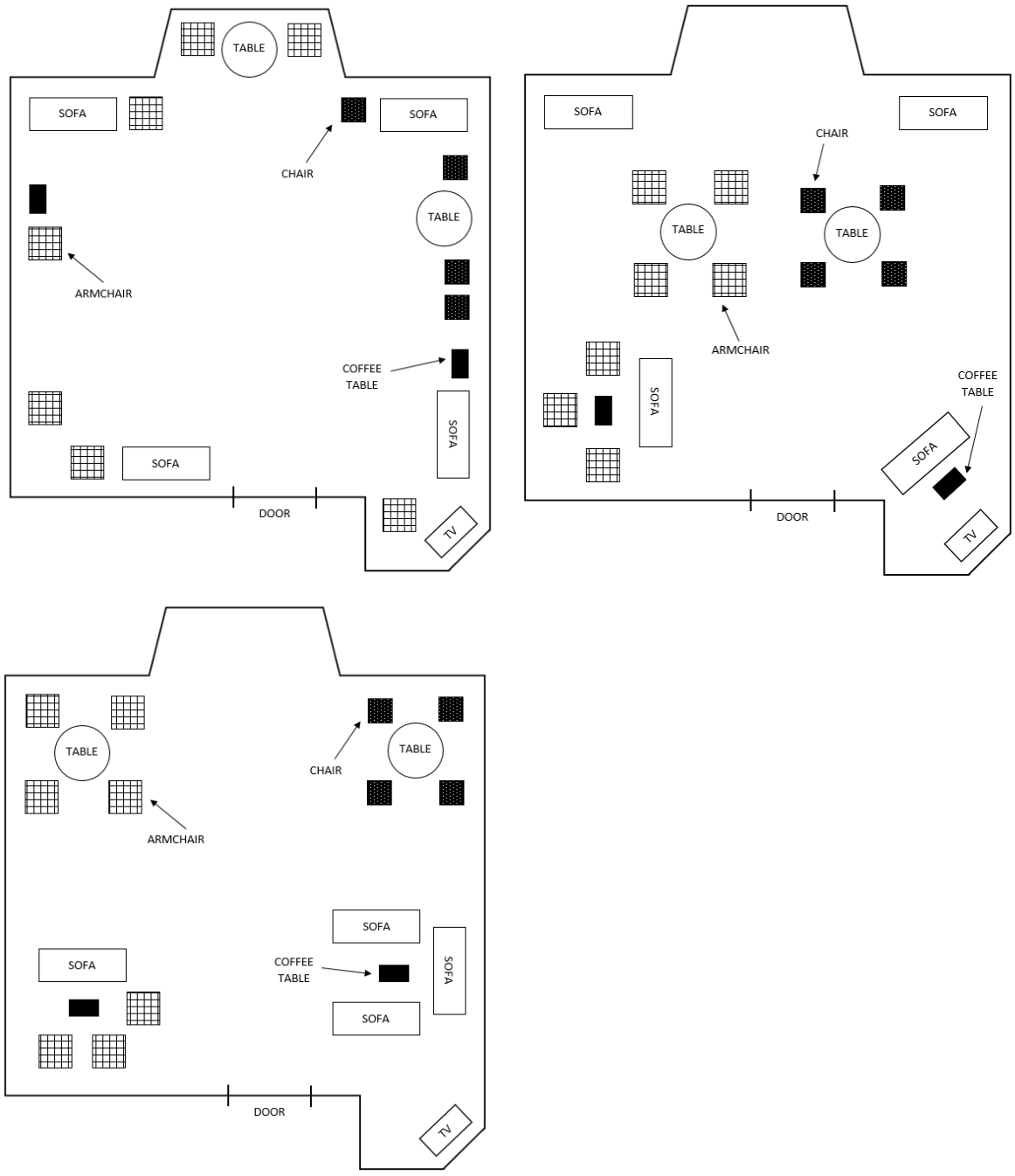

Figure 1. The positions of the items of furniture in the chairs-around-the-edge layout (top-left panel), in the activity-specific layout (top-right panel), and in the small-groups layout (bottom-left panel).

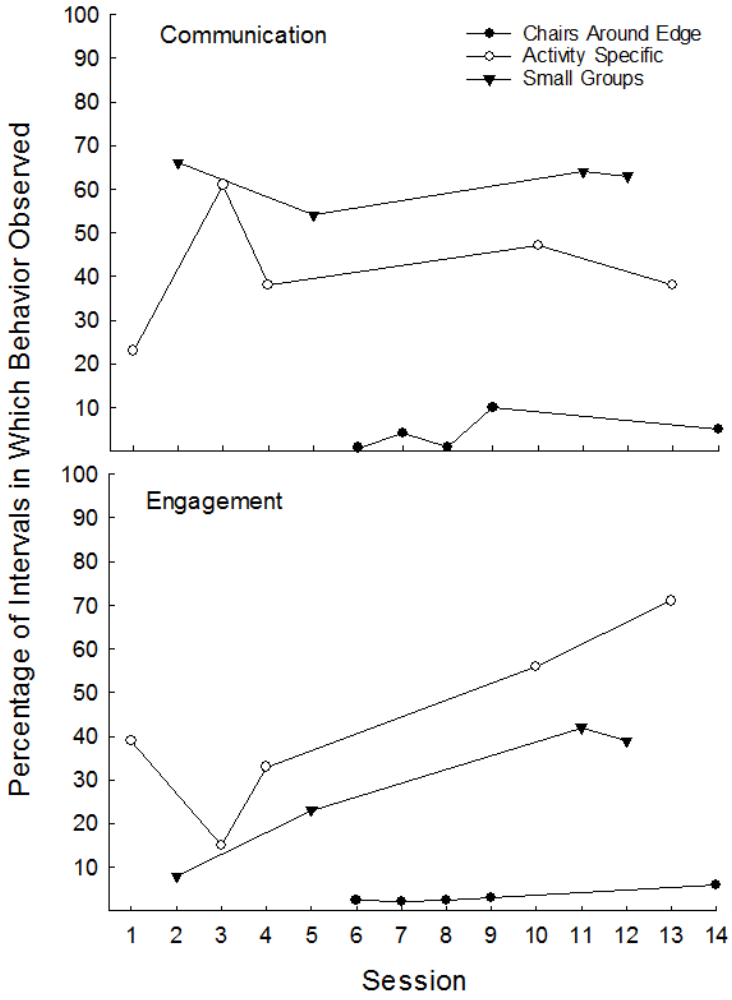

Figure 2. The percentage of intervals in which communication and engagement were observed in each of the three furniture layouts.

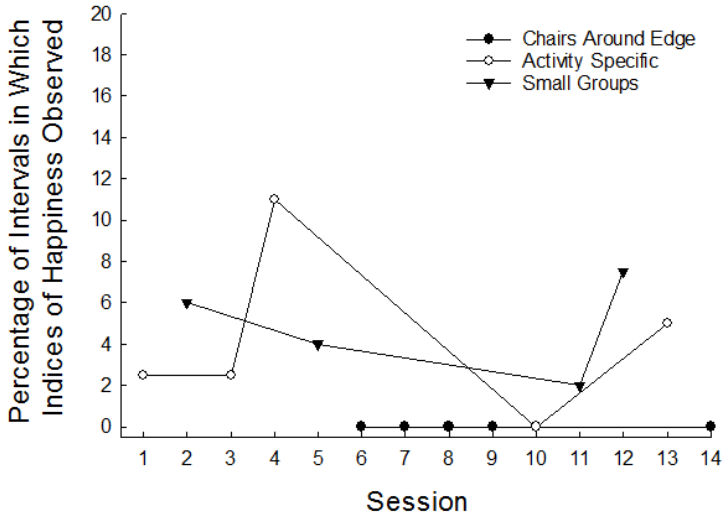

Figure 3. The percentage of intervals in which indices of happiness were observed in each of the three furniture layouts.